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UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

NATIONAL SECURITY AND
INTERNATIONAL AFFAIRS DIVISION

AUGUST 9, 1983

B-211993

The Honorable Caspar W. Weinberger
The Secretary of Defense

Attention: Office of GAO Report Analysis

Dear Mr. Secretary:

Subject: Unused Cargo Space on Military Aircraft
Returning to the United States (GAO/
NSIAD-83-19)

The Military Airlift Command (MAC) provides worldwide airlift support to U.S. military forces. In fulfilling its mission, MAC experiences unused cargo capacity, particularly on flights returning to the United States from overseas points.

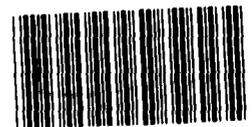
To improve space utilization on return flights, MAC established an air freight service known as TP-4. This service was designed to encourage military shippers to use MAC to ship cargo that would otherwise move by commercial ocean carriers.

Our evaluation of the TP-4 program showed that although a significant volume of cargo was coming into the MAC system, MAC aircraft were still returning to the United States with unused cargo space. At the same time MAC aircraft were returning with empty space, the Department of Defense (DOD) was paying commercial ocean carriers to move its cargo from the countries served by MAC. Had enough of this cargo been diverted to fully use the MAC space, we estimate that DOD could have reduced its ocean transportation costs by as much as \$3.4 million from October 1, 1980, to March 31, 1982. Details of our findings are contained in enclosure I.

MAC officials cited several constraints that they believed precluded greater use of MAC aircraft. Although some of the constraints were valid, most--in our opinion--could be overcome with more effective management of the program.

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Therefore, we recommend that you instruct the services to place enough of their general cargo and household goods shipments into the MAC system to use MAC airlift to the maximum extent possible and direct MAC to provide the services with sufficient and timely notice of available space.

DOD officials agreed that effective management of MAC airlift capacity is essential. They also agreed that both MAC and the services can take actions to optimize current levels of use, particularly on trans-Pacific flights. The officials added that some of these actions had already been initiated.

Although they agreed with the general thrust of the report--that use of MAC space could be improved--DOD officials did question certain aspects of our report. A synopsis of DOD's concerns and our evaluation are contained in enclosure II.

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As you know, 31 U.S.C. §720 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the House Committee on Government Operations and the Senate Committee on Governmental Affairs not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

We are sending copies of this report to the Director, Office of Management and Budget; the Chairmen, House Committee on Government Operations, Senate Committee on Governmental Affairs, and House and Senate Committees on Appropriations and on Armed Services; and the Secretaries of the Army, Navy, and Air Force.

Sincerely yours,



Frank C. Conahan
Director

Enclosures - 2

UNUSED CARGO SPACE ON MILITARY AIRCRAFT
RETURNING TO THE UNITED STATES

INTRODUCTION

As DOD's manager for airlift, MAC provides support for the various military services. MAC's global network of cargo and passenger service covers most of the geographical areas of the world where the United States has major overseas bases or provides logistical support to Allied countries.

MAC's primary mission is to provide the Joint Chiefs of Staff with a strategic airlift force for immediate use in national emergencies. To meet this mission, MAC is equipped with a large fleet of military transport aircraft and procures supplemental airlift from commercial air carriers.

MAC generates more cargo airlift capability than the services need. This is particularly true on overseas flights returning to the United States--more cargo moves outbound from the United States than inbound. As a result, a significant volume of space on return flights is unused.

To more fully use its return airlift capability, MAC established an air freight service known as TP-4. It is designed to move cargo not otherwise eligible for airlift and that would normally move by commercial surface transportation. The service is available only during periods when the airlift capacity exceeds the users' air eligible requirements. MAC rates for TP-4 cargo are designed to be the equivalent of commercial ocean carrier rates.

TP-4 cargo is required to be moved within 20 days. If not, the services should consider taking it out of the MAC system and turning it over for surface transportation.

MAC Regulation 76-1 calls for the establishment of TP-4 excess space estimates by MAC headquarters and the development of movement plans by air terminal managers. These plans are to be based on excess space estimates, port processing constraints, historic airlift utilization, and known future uncommitted space.

DOD's policy for selecting the mode of transportation is contained in DOD Directive 4500.9. Factors to be considered in selecting the mode include (1) mode available, (2) priority, (3) required delivery date, (4) nature of the material, (5) weight and cube of shipment, (6) distance involved, and (7) cost of

available alternatives. This means that the mode selected shall be the one that will meet DOD requirements at the lowest overall cost from origin to final destination.

OBJECTIVES, SCOPE, AND METHODOLOGY

Our objectives were to determine (1) how effectively DOD was using space on MAC-controlled cargo aircraft returning to the continental United States (CONUS), (2) if MAC had unused space on its aircraft, (3) if DOD used commercial carriers to move cargo that could have been diverted to MAC, thereby reducing DOD's transportation costs, and (4) if there were any valid reasons for not using MAC service to the maximum extent possible.

We limited our review to containerized general cargo and personal property shipments tendered to commercial ocean carriers from October 1, 1980, to March 31, 1982. These types of shipments were selected because they are generally compatible with the cargo handled by MAC. Also, since the commercial ocean carriers' service is purchased as needed, this is an area where costs could be avoided by diverting the cargo to available airlift.

We examined policies and procedures of DOD and the military services for the shipment of cargo from overseas points to the United States. We interviewed responsible officials from DOD, the Army, the Navy, the Air Force, and the three transportation operating agencies--the Military Sealift Command (MSC), MAC, and the Military Traffic Management Command.

We visited Pacific Air Forces and Pacific Fleet Headquarters in Hawaii; the U.S. Naval Air Station, Cubi Point; Subic Naval Base and Clark Air Base in the Philippines; and Yokota Air Base in Japan. We also observed MAC terminal operations in CONUS and reviewed appropriate MAC files and reports.

Using MSC statistical and payment records, we determined how much containerized cargo was shipped from selected overseas areas to the United States by commercial ocean carriers. We compiled the cost of commercial ocean transportation and related services, such as line haul and drayage charges both overseas and in the United States. We computed stuffing, port handling, unstuffing, and documentation charges based on applicable tonnages shipped and tariff rates in effect at the time of shipment.

Using data from the MAC Transportation Information Processing System and the Military Air Integrated Reporting System, we determined the approximate tonnage MAC hauled both inbound and outbound during the selected time frame.

We reviewed MAC cargo transportation information files to determine if cargo space was being fully used on regularly scheduled flights. In those cases where space was not used, we estimated the weight of cargo that could have been carried on each reported mission flown by using the lowest weight produced by either of the following computations

--subtracting the payload from the allowable cabin load or

--subtracting the number of pallets carried from the number of pallets that could have been carried by each aircraft and multiplying the difference by 3,600. ^{1/}

We finally determined how much of the cargo that was moved by surface could have moved by air in the unused MAC space, and we estimated how much ocean transportation costs could have been avoided.

Our review was performed in accordance with generally accepted government audit standards.

SPACE AVAILABLE ON MAC FLIGHTS FROM FOUR OVERSEAS AREAS

Although MAC hauled about 23,000 tons of TP-4 cargo between October 1, 1980, and March 31, 1982, its flight records showed that its cargo capacity on return flights was still not being fully used. Our analyses showed that the amount of TP-4 cargo handled could have been increased by 39 percent had MAC's cargo capacity been used more effectively.

The largest amount of unused space was on routes serving England, Germany, the Philippines, and Japan. Therefore, we limited our analyses to these countries because they offered the greatest potential for improvement. We did not consider the unused airlift capacity within a specific theater, but rather we limited our analysis to trans-ocean flights returning to CONUS.

As shown in the following table, we estimate there was enough unused space on MAC flights from these four countries during the 18-month period to accommodate about 9,000 short tons or over 54,000 additional measurement tons of cargo. A measurement ton equals 40 cubic feet.

^{1/}MAC's weight goal per unrestricted pallet is 3,600 pounds.

<u>From</u>	<u>No. of flights</u>	<u>Unused space</u>	
		<u>Short tons</u>	<u>Measurement tons</u>
England	937	2,000	11,794
Germany	2,408	2,694	15,884
Philippines	562	3,702	21,829
Japan	<u>1,153</u>	<u>794</u>	<u>4,681</u>
Total	<u>5,060</u>	<u>9,190</u>	<u>54,188</u>

Since MAC statistics were expressed in terms of short tons and MSC statistics were in measurement tons, we needed a common weight factor for our analysis. We, therefore, converted MAC tonnages to measurement tons by using the average weight per cubic foot (8.48 pounds) for all general cargo and household goods hauled by MAC and MSC during September 1981.

CARGO MOVED COMMERCIALY EVEN
THOUGH MAC HAD UNUSED SPACE

During the same period that MAC had significant unused space on flights returning to the United States, MSC was buying space from commercial ocean carriers to move DOD general cargo and household goods. Between October 1980 and March 1982, MSC and the military services paid about \$8.5 million for transportation and related services to move about 135,000 measurement tons of such cargo. A breakdown of volume and cost by the four countries covered in our review follows.

<u>Country</u>	<u>Measurement tons</u>	<u>Cost</u>
England	15,590	\$1,382,596
Germany	11,163	763,132
Philippines	60,586	3,698,384
Japan	<u>48,120</u>	<u>2,680,420</u>
Total	<u>135,459</u>	<u>\$8,524,532</u>

ESTIMATE OF SAVINGS BY MAKING
GREATER USE OF MAC

To calculate the savings that could have been achieved by diverting some of the cargo that was moved by commercial ocean carriers to MAC, we determined what percentage of the cargo could have been hauled in the unused MAC space. We then applied this percentage to the amount paid to the carriers for moving the cargo from each of the four countries concerned. We found that in the 18-month period reviewed \$3.4 million in transportation costs could have been saved by making optimum use of MAC airlift. Details of our computation are shown in the following table.

<u>From</u>	<u>Moved by ocean carriers</u> <u>Measure-</u> <u>ment</u> <u>tons</u>	<u>Cost</u>	<u>Unused</u> <u>MAC space</u> <u>(measure-</u> <u>ment</u> <u>tons)</u>	<u>Percent of</u> <u>ocean cargo</u> <u>which could</u> <u>have gone by</u> <u>MAC</u>	<u>Maximum</u> <u>estimated</u> <u>savings</u>
England	15,590	\$1,382,596	11,794	76	\$1,050,773
Germany	11,163	763,132	15,884	100	763,132
Philippines	60,586	3,698,384	21,829	36	1,331,418
Japan	48,120	2,680,420	4,681	10	268,042
Total	135,459	\$8,524,532	54,188		\$3,413,365

We recognize there would have been times when there was MAC space but no cargo, or when there would have been cargo but no space. We also recognize that 100 percent use of the capacity of all MAC flights is not possible. However, considering the almost constant flow of cargo and daily frequency of MAC flights from the four countries reviewed, we believe that the potential for improving the use of MAC space is good.

While it is not possible to use 100 percent of MAC's capacity, there are other opportunities to effect savings. As mentioned earlier, although we did not attempt to establish how much of the cargo that moved by commercial carriers within or between theaters could have been moved by MAC, we do know there was excess MAC airlift.

DOD'S POSITION ON MAC USE IS CLEAR

In an October 2, 1973, letter to the military services, DOD noted that the services were diverting shipments of un-accompanied baggage and household goods from MAC to commercial air carriers. DOD stated it was apparent that such diversion had been effected without regard to the availability of MAC unused space, particularly on aircraft returning to the United States. The reason for the diversion was an attempt by the services to conserve funds, since the MAC rates were apparently greater than commercial air carrier rates.

DOD noted that the apparent savings were only an illusion since the net effect was to increase total DOD costs, which, in turn, would be passed to the services. It directed the services to use MAC's capability where available and where it would satisfy users' needs, regardless of MAC tariff rates. Currently, rates are not an issue since the TP-4 rate is designed to be about the same as the commercial ocean carrier rate.

Although this situation involved only the diversion of shipments of unaccompanied baggage and household goods, DOD's position seems clear. Unused MAC space should be used if the MAC service meets the users' needs.

CONSTRAINTS TO MAXIMIZING USE OF
MAC SPACE

Officials at the MAC terminals we visited cited several constraints that they believed preclude them from maximizing the use of excess space on MAC aircraft for TP-4 shipments. Some of the more common were

- inadequate space to store additional cargo awaiting airlift,
- insufficient personnel to handle additional cargo,
- uncertainty whether cargo will actually be airlifted, and
- uncertainty of through-shipment to CONUS.

While there appears to be some valid constraints, most are more theoretical than real. We think effective management of the program could overcome most of the alleged constraints.

Inadequate storage space

Officials at the three overseas MAC terminals we visited said that inadequate storage space prevented them from transporting more TP-4 cargo. The MAC unit commander at Yokota Air Base in Japan said that a study made by his staff showed that only 15 pallets of TP-4 cargo could be stored inside without disrupting operations. The MAC operations superintendent at Clark Air Base said that he could not handle more TP-4 cargo because he believed that inside terminal space was to be used strictly for cargo pallet buildup and breakdown and for handling hazardous cargo. The air terminal manager at the Naval Air Station, Cubi Point, Philippines, also cited inadequate storage space as one of the constraints to handling additional TP-4 cargo.

It is possible that some additional space would be required if ocean cargo were indiscriminately diverted to MAC. However, close daily coordination among the shipper, the terminals, and MAC would better match the flow of cargo into the terminals with the availability of MAC space thereby minimizing the holding time of TP-4 cargo.

Insufficient personnel

Personnel levels at MAC terminals are determined by the amount of cargo handled. Officials at two terminals indicated there was a satisfactory relationship between current personnel strength and workload. However, they believed increasing the movement of TP-4 cargo could change the situation quickly. Also, MAC officials at Clark believed a large increase in the number of TP-4 shipments would require working 12-hour shifts, 6 days a week.

We recognize that more cargo coming into the MAC system will increase the workload. However, in many cases the additional workload could be absorbed within current staffing levels. For example, the 9,000 additional tons of cargo distributed over more than 5,000 flights would increase the workload per flight very little. Also, the savings that could be realized would seem to warrant adding extra positions at those terminals where the current workloads equal or exceed present staffing levels.

Uncertainty whether cargo will move

Officials at all three of the overseas MAC terminals we visited cited uncertainty of cargo movement as another constraint to transporting increased amounts of TP-4 cargo. The MAC operations superintendent at Yokota said that if he were a transportation official, he would not ship personal property as TP-4 cargo because of the uncertainty of movement. The air terminal manager at the Naval Air Station, Cubi Point, said that TP-4 cargo could be diverted to surface shipment, which means that TP-4 cargo could be held 20 days awaiting airlift and then pulled back for ocean transportation. In such cases, the 20 days would be wasted. Clark officials said that the possibility of cargo being diverted to surface transportation made transportation officials hesitant about using MAC.

Despite the comments made by MAC officials, Air Force air clearance authorities and Navy overseas air cargo terminal officials at Clark and Yokota said that there had been no diversions to surface in the last few years. They said TP-4 cargo had always been airlifted within 20 days. In fact, Yokota officials said that TP-4 cargo was usually airlifted within 8 days.

Uncertainty of through shipment
to CONUS

Some terminals are classified as secondary generation points for generating and moving TP-4 shipments. As such, all

MAC flights from these locations to CONUS make intermediate stops at primary generation points.

One of the major constraints to transporting increased amounts of TP-4 cargo was the lack of direct cargo flights to CONUS. For example, MAC officials at Clark were concerned about TP-4 shipments going all the way through to CONUS without being off-loaded at Yokota for higher priority cargo. When asked, MAC officials at Yokota were uncertain how often cargo from Clark had to be off-loaded, but they believed that it involved about 20 percent of the flights from Clark Air Base. They also said that it happened about once a week and that TP-4 cargo was always off-loaded first because it had the lowest priority.

The low priority of TP-4 cargo makes it vulnerable to off-loading. However, the relatively low percentage of such occurrences should not, in itself, justify not using MAC space.

DOD'S COMMENTS AND GAO'S EVALUATION

DOD officials agreed that effective management of MAC airlift is essential and that actions can be taken to optimize current levels of utilization. However, they did question certain aspects of our report. A synopsis of DOD's concerns and our evaluation follow.

AMOUNT OF UNUSED SPACE

In a draft of this report, we stated that about 65 percent of the space on MAC aircraft transiting the Atlantic was used and only about 50 percent of the trans-Pacific airlift was used. DOD questioned the validity of these percentages based on the level of unused space cited elsewhere in the report.

Our percentages were based on the unused weight capacity of the aircraft involved and were verified as being accurate. However, because of bulky cargo, the aircraft could not, in many cases, accommodate their full weight capacity. Therefore, our estimate of the additional cargo that could be hauled was somewhat less than 35 and 50 percent of the weight capacity of the aircraft.

Although the percentages are accurate, we agree they might be misleading. Therefore, they have been deleted from the final report. However, this does not change our estimate of unused space or the maximum savings that would result from full use of such space because it was based on the lesser of the weight or cube capacity.

ESTIMATE OF SAVINGS

DOD officials stated that our estimated savings of \$3.4 million may be overstated since the commercial transportation costs we used in our computation covered movement of cargo to an inland destination in the United States; whereas, MAC would only provide service to an aerial port. They argued that additional transportation costs would have to be incurred to get the cargo to destination and that such costs would have to be offset against our estimate of savings.

It is true that some additional costs would be incurred. However, of the 135,000 measurement tons of cargo hauled by commercial ocean carriers, only about 33,750 tons, or 25 percent, was provided inland transportation. The remainder was off-loaded at port and required additional costs for movement to destination--the same as if it were hauled by MAC. Therefore, the overall impact of this factor would be

minimal. Also, we believe the savings that could be realized on intra-theater moves would more than offset any additional costs that would be incurred to move cargo from MAC terminals to inland destinations.

DOD'S POLICY ON USE OF MAC

In our report, we stated that an October 1973 letter from DOD to the military services contained DOD's policy on the use of MAC airlift. DOD officials took exception and said that the letter covered only the movement of unaccompanied baggage shipments and household goods, not general cargo. Instead, they referred to a May 1976 letter as the source of DOD's policy. Our interpretation of DOD's policy with respect to MAC airlift was not challenged, only the policy's source. DOD officials did not dispute our findings that it is DOD's policy that MAC space be used if it meets the users' needs.

MONITORING BY DOD INSPECTOR GENERAL

DOD officials did not agree with our recommendation that the DOD Inspector General be directed to periodically monitor the TP-4 program to see how effectively space on MAC aircraft returning to CONUS is being used. DOD officials stated that the magnitude of the problem does not warrant additional expenditure of audit resources. They believed that actions taken and actions planned in response to our recommendations should be adequate to resolve this issue.

In addition, under current DOD procedures, the DOD Inspector General is required to periodically follow up on our recommendations. For these reasons, we deleted this recommendation from the final report.